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ABSTRACT

This report presents findings from an evaluation of Philadelphia's Children Achieving reform agenda, which was designed to improve the Philadelphia public schools. Between 1995-1996 and 2000-2001, interviews were conducted with hundreds of teachers, principals, parents, students, district officials, and civic leaders. Researchers sat in on meetings where the plan was developed, observed its implementation in classrooms and schools, conducted two systemwide surveys of teachers, and carried out independent analyses of the district's test results and other indicators of system performance. Results indicate that Children Achieving reforms are related to students' school achievement. Children Achieving reform components demonstrate significant relationships to fourth grade reading achievement. Schools with more obstacles to learning and with more safety concerns have a higher probability that fourth graders will score below the mean in standardized reading achievement. These relationships are even higher among high poverty schools. Well-implemented small learning communities provide a good learning environment and are better implemented in safer schools with a greater sense of teacher professional community and fewer obstacles to learning. School size and teacher experience relate to both obstacles to student learning and teacher-reported professional community. Three appendices present analysis of the Survey of Philadelphia Teachers, the 1998-1999 Teacher Survey, and rationale for and description of variable categories. (SM)

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An Analysis of the Effect of Children Achieving on Student Achievement in Philadelphia Elementary Schools

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Ellen Foley

February 2002

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ABOUT THE CHILDREN ACHIEVING CHALLENGE

In February 1995, shortly after the School Board of Philadelphia adopted *Children Achieving* as a systemic reform agenda to improve the Philadelphia public schools, the Annenberg Foundation designated Philadelphia as one of a few American cities to receive a five-year $50 million Annenberg Challenge grant to improve public education.

Among the conditions for receiving the grant was a requirement to raise two matching dollars ($100 million over five years) for each one received from the Annenberg Foundation and to create an independent management structure to provide program, fiscal, and evaluation oversight of the grant. In Philadelphia, a business organization, Greater Philadelphia First, assumed this responsibility, and with it, the challenge of building and sustaining civic support for the improvement of public education in the city.

Philadelphia's *Children Achieving* was a sweeping systemic reform initiative. Systemic reform eschews a school-by-school approach to reform and relies on coherent policy, improved coordination of resources and services, content and performance standards, decentralization of decision-making, and accountability mechanisms to transform entire school systems. Led by a dynamic superintendent and central office personnel, *Children Achieving* was the first attempt by an urban district to test systemic reform in practice.

EVALUATION OF CHILDREN ACHIEVING

In 1996, the Consortium for Policy Research in Education (CPRE) at the University of Pennsylvania and its partner, Research for Action (RFA), were charged by the *Children Achieving* Challenge with the evaluation of *Children Achieving*. Between the 1995-1996 and 2000-2001 school years, CPRE and RFA researchers interviewed hundreds of teachers, principals, parents, students, District officials, and civic leaders; sat in on meetings where the plan was designed, debated, and revised; observed its implementation in classrooms and schools; conducted two system-wide surveys of teachers; and carried out independent analyses of the District's test results and other indicators of system performance. An outline of the research methods used by CPRE and RFA is included in this report. A listing of the reports on *Children Achieving* currently available from CPRE is found below. There will be several additional reports released in the coming months. New reports will be listed and available as they are released on the CPRE web site at www.cpre.org.

CHILDREN ACHIEVING'S THEORY OF ACTION

To assess the progress and effects of a comprehensive reform such as *Children Achieving*, it is essential to understand its "theory of action," that is, the assumptions made about what actions or behaviors will produce the desired effects. A summary of the *Children Achieving* theory of action follows:

Given high academic standards and strong incentives to focus their efforts and resources; more control over school resource allocations, organization, policies, and programs; adequate funding and resources; more hands-on leadership and high-quality support; better coordination of resources and programs; schools restructured to support good teaching and encourage improvement of practice; rich professional development of their own choosing; and increased public understanding and support; the teachers and administrators of the Philadelphia schools will develop, adopt, or adapt instructional technologies and patterns of behavior that will help all children reach the District's high standards.

ADDITIONAL READING ON CHILDREN ACHIEVING

The following publications on the evaluation of *Children Achieving* are currently available through CPRE at (215) 573-0700, or email your requests to cpre@gse.upenn.edu.

- Recruiting and Retaining Teachers: Keys to Improving the Philadelphia Public Schools (May 2001)
- School Leadership and Reform: Case Studies of Philadelphia Principals (May 2001)
- Contradictions and Control in Systemic Reform: The Ascendancy of the Central Office in Philadelphia Schools (August 2001)
- Clients, Consumers, or Collaborators? Parents and their Roles in School Reform During *Children Achieving*, 1995-2000 (August 2001)
- Powerful Ideas, Modest Gains: Five Years of Systemic Reform in Philadelphia Middle Schools (December 2001)
- An Analysis of the Effect of *Children Achieving* on Student Achievement in Philadelphia Elementary Schools (February 2002)

AUTHORS' NOTE

The research reported herein was conducted by the Consortium for Policy Research in Education and Research for Action. Funding for this work was provided by Greater Philadelphia First and The Pew Charitable Trusts. Opinions expressed in this report are those of the authors, and do not necessarily reflect the views of Greater Philadelphia First, The Pew Charitable Trusts, or the institutional partners of CPRE.

CHILDREN ACHIEVING EVALUATION 1995-2001: RESEARCH METHODS

During the past five years, the Consortium for Policy Research in Education and Research for Action used the research methods indicated below in their evaluation of the *Children Achieving* Challenge.

1. 1996-2000 school-level data on indicators that made up the District's Performance Responsibility Index including student scores on the SAT-9, student promotion and graduation rates, student attendance, and teacher attendance.

2. Two census surveys of teachers, the first in 1997 and the second in 1999. Teachers were asked about reform implementation, school conditions, and teaching practices. There was a greater than 60 percent response rate on both surveys.

3. School indicators describing teacher and student characteristics in 1996 and 1999 obtained from the School District of Philadelphia's Information Services. These data included school enrollment, number of teachers, the proportion of students qualifying for free or reduced price lunch, among other indicators. These data were used for descriptive purposes and in hierarchical linear and logistic regression models to help understand the relationships among reform implementation, student outcomes, and school characteristics.

4. Five years (1995-1996 through 1999-2000) of qualitative research in 49 schools (26 elementary, 11 middle, and 12 high schools) in 14 clusters. Qualitative research included: interviews of teachers, principals, parents, outside partners who worked in the schools, and in a few cases, students; observations of classrooms, SLC meetings, professional development sessions, and school leadership team meetings; review of school documents (School Improvement Plan, budget, etc.); and intensive, multi-year case study research in a subset of 25 schools (13 elementary, five middle, and seven high schools).

5. Interviews of central office and cluster staff and observations of meetings and other events.

6. Interviews of 40 Philadelphia civic leaders (including political leaders, leaders in the funding community, public education advocates, journalists, and business leaders).

In addition, numerous other studies conducted during *Children Achieving* informed this evaluation. These included: Bruce Wilson and Dick Corbett's three-year interview study of middle school students; an evaluation of the Philadelphia Urban Systemic Initiative in Mathematics and Science conducted by Research for Action; the Philadelphia Education Longitudinal Study conducted by Frank Furstenberg at the University of Pennsylvania; and the evaluation of the William Penn Foundation's initiative in two clusters, conducted by the National Center for Restructuring Education, Schools, and Teaching.

INTRODUCTION

Evidence over the last few decades clearly indicates that America's city schools need educational improvement. Specifically, United States urban education systems are characterized by levels of low educational achievement, high dropout rates, and too many graduates who are inadequately prepared for college or employment.

With the number of children in poverty rising,[1] documentation that high-poverty schools are disproportionately composed of ethnic and racial minorities,[2] and evidence that students with the lowest levels of academic achievement are more likely to be found in high-poverty schools,[3] researchers and policymakers have identified urban minority children as especially vulnerable to educational failure.

Now more than ever, poor school performance can have potentially devastating consequences for poor children. While a lack of education has been linked for decades to economic difficulty and unemployment, experts indicate that the consequences of educational failure will be increasingly more costly as we begin the 21st century.[4] Evidence to support this claim includes the increasing competitiveness of the international economy, the loss of unskilled and semi-skilled jobs to off-shore locations, our society's ever-increasing dependence on technology, as well as reports documenting the requirements of higher educational standards for more and more jobs.[5]

In response to reports insisting on improvements in public education, educators and policymakers have worked together to raise education standards in the states.[6] In an effort to reach the new standards, reform efforts have been designed and implemented across the country to raise children's school performance. One approach to reform has been to set standards, design new assessments and accountability procedures aligned with the standards, invest in supports to improve curriculum and instruction, and decentralize more authority to schools.

[1] National Center for Education Statistics, *Urban schools: The challenge of location and poverty.* Washington, D.C.: U.S. Department of Education, Office of Educational Research and Improvement, 1996. F.C. Jones-Wilson, "Alleviating the force of poverty on poor minority children." *Early Child Development and Care* 73 (1991), pp. 103-120.

[2] S.W. Duncan, "Families and neighbors as sources of disadvantage in the schooling decisions of White and Black adolescents." *American Journal of Education* 103 (1994), pp. 20-53. A.M. Garibaldi, "Four decades of progress and decline: An assessment of African American educational attainment." *Journal of Negro Education* 66 (1997), pp. 105-120.

[3] National Center for Education Statistics, *Urban schools: The challenge of location and poverty.* Garibaldi, "Four decades of progress and decline."

[4] J. Belsky and C. McKinnon, "Transition to school: Developmental trajectories and school experiences." *Early Education and Development* 5 (1994), pp. 106-119. National Center for Education Statistics, *The condition of education 1996.* Washington, D.C.: U.S. Department of Education, Office of Educational Research and Improvement, 1996.

[5] S.A. Rush and P.A. Vitale, "Analysis for determining factors that place elementary students at risk." *Journal of Educational Research* 87 (1995), pp. 325-333.

[6] U.S. Department of Education, *National education goals.* Washington, D.C.: Author, 1992. National Education Goal Panel, *The national education goals report: Building a nation of learners.* Washington, D.C.: Author, 1996.

This strategy is known as systemic reform.

In Philadelphia, the comprehensive school reform created to assess and address educational needs was called *Children Achieving*. Adopted by the School District of Philadelphia in 1995, it was one of the most ambitious attempts to implement systemic reform in an urban education system.

QUANTITATIVE RESEARCH DESIGN AND METHODOLOGY

Children Achieving was based on the premise that children can achieve if provided with effective learning opportunities. Toward this end, the *Children Achieving* reform was composed of a series of components geared toward actualizing this goal. This report provides a detailed summary of the quantitative analysis conducted as part of *Children Achieving*.

PHILADELPHIA SCHOOL DISTRICT PROFILE

The School District of Philadelphia is the seventh largest district in the nation, and during the 2000-2001 school year, served 208,170 children. The District was then composed of 264 schools organized into 22 clusters. It is both racially and ethnically diverse with a student population 65.1 percent African American, 4.8 percent Asian American, 12.6 percent Hispanic, 0.2 percent Native American, and 17.3 percent White. Additionally, over 80 percent of the children served come from low-income families, as indicated by the number of families receiving Aid for Department Children or food stamps services.

QUANTITATIVE ANALYSIS TEAM

When conducting large-scale program evaluations, a combination of quantitative and qualitative methods should be used to ascertain the most comprehensive and accurate information.[7] From the outset, the evaluation of *Children Achieving* was designed to utilize both qualitative and quantitative methods. Toward that end, teams of professionals representing qualitative and quantitative perspectives were created, and the members of both teams worked closely together to create an effective and comprehensive research effort.

The quantitative analysis team had two key responsibilities. First, quantitative support was provided in the planning stages of the project. Quantitative research methodologists were consulted and involved in conceptualizing what reform components should be considered in the research design, and in refining how they should be developed in an effort to minimize threats to both internal and external validity.[8] Second, quantitative research staff contributed

[7] R.F. Boruch, *Randomized experiments for planning and evaluation: A practical guide*. London: Sage Publications, 1997.

[8] D.T. Campbell and J.C. Stanley, *Experimental and quasi-experimental designs for research*. Boston: Houghton Mifflin Company, 1963.

to the evaluation by studying the effects of the reform on schools and student performance.

The quantitative focus in evaluating *Children Achieving* was strongly supported by the following two-part rationale: First, the foundation for producing meaningful and relevant results is having a valid understanding of what is being studied. Researchers need to know what they are measuring and know that there is empirical support for their constructs. Second, once an empirical understanding of reform components is identified, the accuracy and generalization of results depends on thoughtful analysis to maximize the probability of accurate and comprehensive results.

DATA ANALYSIS AND RESEARCH QUESTIONS

The work of the quantitative data analysis team was guided by one overarching question: How has *Children Achieving* impacted the School District of Philadelphia's students, teachers, and schools?

To explore the impact and effects of the *Children Achieving* reform, a multi-stage process of data analysis was conducted. First, we wanted to investigate whether the *Children Achieving* reforms demonstrated significant relationships with student achievement after controlling for key variables that might confound results. Second, we wanted to see if there were any significant influences on student success among the poorest schools (i.e., school environment and teacher demographic variables) in an effort to identify what helps these students succeed.

A central concern was the degree of accuracy with which we could address the potential effect of the *Children Achieving* reform. Accurate measurement of its effects was a direct function of the degree to which we accurately measured the dimensions of the reform itself. In other words, before we were able to look at relationships between reform components and possible outcomes, we needed to be certain that we were working with valid constructs. While the teacher survey was developed with specific reform components drawn from the theory of action and the District's work plans, steps were taken to empirically document their existence in the schools. Consequently, our first research question addressed the construct validity of the teacher survey.

Once meaningful constructs were established, data were analyzed using multiple methods and procedures. These methods are outlined in detail below. They represented a reliable way to address the proposed hypotheses about the effects of the reforms.

Overall, the quantitative analysis of *Children Achieving* addressed four specific research questions:

- What meaningful and measurable components composed the *Children Achieving* effort?
- What was the relationship between *Children Achieving* and student achievement?

- Did identified school-level characteristics (i.e., school safety, school climate, instructional obstacles), teacher demographics, school conditions, and *Children Achieving* reform variables significantly relate to fourth grade reading achievement?
- Did identified school-level characteristics, fourth grade reading achievement, and certain *Children Achieving* reform variables significantly relate to teacher-reported school conditions and other aspects of the *Children Achieving* reform?

ELEMENTARY FOCUS

Due to both the magnitude and the limitations of the data we collected, the results reported in this report pertain to a specific subgroup. Specifically, because elementary schools had the highest response rates to the teacher survey, the sample size for this group was most appropriate for the analyses. Because the fourth grade test scores are used in the District's accountability system, these students were highlighted for analyses. The test data came from the administration of the Stanford Achievement Test-9th Edition. Moreover, reading was selected as the focus subject area. Reading has been widely documented as a fundamental skill to be mastered in the elementary school years, and has also been shown to be related to future school performance. Analyses looking at fourth grade mathematics and science achievement, as well as analyses for middle school and high school grades are beyond the scope of the current report, but have been recognized as priority areas for future analyses.

TEACHER RESPONDENTS

Tables 1, 2, and 3 provide information about the Philadelphia School District teachers who responded to the 1998-1999 survey, and are cited from an earlier Consortium for Policy Research in Education (CPRE) report on teacher quality. For a more detailed description of the teachers who participated in the *Children Achieving* Challenge, please refer to *Recruiting and Retaining Teachers: Keys to Improving the Philadelphia Public Schools.*[7]

STUDENT POPULATION

Student-level data aggregated at the school level was retained for those schools with teachers who returned the survey. In general, the demographic breakdown of the students represented in all analyses are representative of the School District of Philadelphia.

TEACHER SURVEY

CPRE administered the 1999 Philadelphia teacher survey in June 1999. The survey consisted of over 300 items asking teachers' perception on school safety, professional community, school leadership, school conditions, professional development, components of the *Children Achieving* reform, teacher background, and classroom practice in mathematics, reading,

[7] S. Watson, *Recruiting and retaining teachers: Keys to improving the Philadelphia public schools.* Philadelphia: Consortium for Policy Research in Education, University of Pennsylvania, 2001.

English, or language arts. Data from the teacher survey were used to construct variables representing school conditions, the *Children Achieving* reform, and teacher qualifications. Please refer to Appendix A for a complete description of the development of the teacher survey, detailed description of variable criterion and categorization, and the procedures for distribution.

TABLE 1. PROFILE OF TEACHERS IN THE SCHOOL DISTRICT OF PHILADELPHIA FROM COMBINED DATA SOURCES: 1998-1999 TEACHER SURVEY AND DISTRICT DATA

		Ethnicity		Gender	Qualifications	Experience
	N	Percent White	Percent African American	Percent Male	Percent with Master's Degree and Higher	Percent with More than 15 Years Total Experience
Elementary	3,393	67	25	13	44	55
Middle	889	58	37	17	43	41
High	1,264	69	22	52	62	70
Survey Total	5,731[1]	65	26	25	49	56
District Total	10,415	63	34	26	58	44[2]

[1] *185 teachers teach in schools with other grade configurations.*

[2] *Percent of teachers with 15 or more years in the District.*

TABLE 2. HIGHEST LEVEL OF QUALIFICATION OF TEACHERS AND TOTAL WITH AT LEAST A MASTER'S DEGREE IN 1998-1999, BY SCHOOL LEVEL AND SUBJECT IN SCHOOL DISTRICT OF PHILADELPHIA (IN PERCENTS)

	Bachelor's	Master's Only	Master's and Higher	Master's Total
Grade Level				
Elementary	27	29	44	73
Middle	29	29	43	72
High	17	21	62	83
Total	25	27	49	76
Academic Subject				
Math	24	34	25	59
Science	33	26	25	51
Other Subjects	34	25	40	65

Source: 1998-1999 CPRE teacher survey.

TABLE 3. PERCENT OF TEACHERS: IN FIRST YEAR OF TEACHING, WITH FIVE OR FEWER YEARS OF TEACHING, OR MORE THAN 20 YEARS TEACHING IN CURRENT SCHOOL, AND IN TOTAL, 1998-1999, SCHOOL DISTRICT OF PHILADELPHIA (IN PERCENTS)

	First Year Teaching		Five or Fewer Years Teaching		Over 20 Years Teaching	
	In this school	In total	In this school	In total	In this school	In total
Elementary	17	6	48	22	12	45
Middle	19	7	51	29	6	28
High	15	4	44	15	17	61
Total Average	16	6	48	21	13	46

Source: 1998-1999 CPRE teacher survey.

Note: In an effort to ensure the integrity of the sample, only surveys that were returned with at least 40 percent completion were retained for analysis. Under these guidelines, 3,366 teachers from 133 schools were included in the sample, with the majority of the respondents being elementary school teachers. The response rates of teachers by grade level are shown in Table 4.

TABLE 4. RESPONSE RATES AND NUMBERS TO THE CPRE TEACHER SURVEY, 1998-1999

	Percent Response	N Response
Elementary	66	3,254
Middle	54	852
High	58	1,224
Total	63	5,330

TABLE 5. PROFILE OF SCHOOL DISTRICT OF PHILADELPHIA STUDENTS BY ETHNICITY, 1998-1999 (IN PERCENTS)

	White	African American	Asian American	Latino	Native American
Elementary	18	64	5	13	.2
Middle	14	69	3	14	.1
High	21	62	6	10	.3
Total	18	65	5	12	.2

Note: The percentage breakdowns presented above are commensurate with the students used in the analyses for this report.

FOURTH GRADE READING ACHIEVEMENT

As part of the accountability system of the *Children Achieving* reform, the Stanford Achievement Test-9th Edition (SAT-9) in mathematics, reading, and science was administered annually to fourth, eighth, and eleventh grade students since 1996. CPRE collected school-level SAT-9 achievement scores in reading, mathematics, and science since 1996. As the school-level reading achievement results had the widest range in distribution and were highly correlated with both mathematics and science achievement, a decision was made to use reading achievement as the dependent variable. The average normal curve equivalent (NCE) scores from 1996 through 1999 for 173 elementary schools (both traditional elementary and K-8 schools) were then adjusted to take into account the gradual expansion of the population of

students taking the test.[10] The final dependent variable used was the adjusted school-level fourth grade reading achievement from 1996 to 1999.

DISTRICT-REPORTED SCHOOL-LEVEL DEMOGRAPHIC DATA

The School District of Philadelphia collects records annually on each of its schools including records on school poverty, student mobility, student attendance, staff mobility, and total enrollment. CPRE used the 1999 school-level demographics data in this analysis.

EVALUATION AND RESEARCH QUESTIONS AND FINDINGS

QUESTION 1: WHAT MEANINGFUL AND MEASURABLE COMPONENTS COMPOSED THE CHILDREN ACHIEVING EFFORT?

RATIONALE AND HYPOTHESES

The first critical step of the quantitative research team was to empirically document what the teacher survey was attempting to measure. While the *Children Achieving* theory of action provided the theoretical basis for survey construction, the survey's latent structure, or empirical inherent meaning, needed to be statistically investigated in order to confirm what specific constructs or factors the survey items were measuring. Specifically, principal-axis factor analysis was used to identify the inherent structure (i.e., combination of factors) captured by the survey items.[11] Appendix B provides a detailed description of the empirical steps followed to arrive at the final factor solution used for all subsequent analyses. In short, a series of exploratory and confirmatory procedures were executed to identify the set of factors that most reliably and meaningfully represented the latent structure of the survey items.

In this analysis, a factor refers to a group of items that, through statistical analysis, hold together. Based on the composition of the item (i.e., what the item says), a name for the factor is given to best describe the overall theme or meaning of the item group.

[10] For the HLM analysis, average normal curve equivalent scores for every school with a fourth grade were adjusted to account for the changing population of students who took the test each year. This primarily affected baseline scores (1996) when dramatically fewer students took the SAT-9 than in later years. Assuming that most of the students excluded from testing each year would have scored at lower levels on average than those who took the test, we adjusted each school's scores using the mean normal curve equivalent, its standard deviation, and the proportion of students who took the test each year. This process was undertaken in order to assure that we were comparing test scores from the same population of students annually.

[11] Squared multiple correlations were used as the initial communality estimates for the common factor analyses. Additionally, promax solutions were run at varying levels of power, k=3, 5, 7, and each oblique solution was compared to the final orthogonal solution to determine the most parsimonious explanation.

One of the most important uses of factors developed from the survey is that they can then be used as variables in further analysis. Here, a variable is a general term that refers to a quantified concept that is part of an empirical question being tested.

It is important to note that in addition to the empirical steps taken to ascertain and describe the final factor solution, members of the qualitative research team were also consulted to describe the different constructs based on the rubrics they used to describe schools in their work. Through collaborating with the qualitative research team, observations and hypotheses were examined in light of the empirical findings to conceptually frame and define the final factor solution.

RESULTS

Factor analysis of the teacher survey revealed eight independent factors. Each of the eight factors fell into one of two groups. The first group, *Children Achieving* Reform Components, consisted of four factors: Small Learning Communities; the Teaching and Learning Network; Curriculum, Assessment, and Accountability; and Teacher Practice. The second group of factors, School Characteristics, included the following: School Climate, School Safety, Obstacles to Student Learning, and Teacher Professional Community. Each of the eight factors demonstrated high internal consistency. Here, Cronbach Alpha coefficients reflect the degree to which the items in a factor relate to each other. Table 6 shows the survey factors and their internal reliability coefficients.

The first group of factors relate to different components of the *Children Achieving* reform, and more particularly, reflect the degree of implementation of different aspects of *Children Achieving*. Small Learning Communities consisted of sub-units of schools organized to improve the conditions of teaching and learning and strengthen relations between teachers

TABLE 6. TEACHER SURVEY FACTORS AND CRONBACH'S ALPHA COEFFICIENTS

Factor Name	Cronbach's Alpha
Children Achieving Reform Components	
Small Learning Communities	.91
Teaching and Learning Networks	.93
Curriculum, Assessment, and Accountability	.89
Teacher Practice	.95
School Characteristics	
School Climate	.79
School Safety	.84
Obstacles to Student Learning	.89
Teacher Professional Community	.94

and students. Sample items of survey questions that composed this factor include: "My small learning community has a clear vision that shapes my curriculum and instruction," "The teachers in my small learning community make decisions about curriculum and instruction," and "Identified individual intervention strategies for students who needed additional assistance."

Teaching and Learning Network (TLN) is a second *Children Achieving* reform component. It was originally designed to be the professional development arm of the District, and is characterized by items such as, "TLN staff have helped me identify and observe good teaching practices," "the TLN has given me help in dealing with students with special needs," and "the TLN staff in my cluster have the knowledge and skills they need to help me improve my classroom practice."

The Curriculum, Assessment, and Accountability factor captured curricular resources offered as part of *Children Achieving*. This factor included items such as, "I have made changes in my teaching strategies to help our school achieve the year's performance index target," and "The Philadelphia Curriculum, Assessment, and Accountability Frameworks have led me to make changes in what I teach."

Finally, Teacher Practice refers to different learning strategies implemented by teachers in the classroom, and is composed of items including, "Estimate the change this year in how often you asked students to work in pairs or small groups, critique other students, and write about something they read."

The second group of factors represents different School Conditions or Characteristics. The first factor, School Climate, refers to different aspects of the school environment, such as student characteristics and student-teacher relations that are hypothesized to contribute to the learning environment. The instructional climate factor is described by items such as, "Students are generally well behaved in the classroom," and "To what extent do you feel respected by students at this school, the parents of your students, and central office staff."

School Safety is characterized by items such as, "Applying disciplinary rules more consistently within the school," "Insisting that all students wear picture identification badges," and "Increasing the number of security personnel."

Obstacles to Student Learning describe those things that impede student learning, and include items such as, "Inability to access community support," "Poor student attendance," and "High student mobility in and out of the school."

Finally, Teacher Professional Community captures those items that describe the dynamics among teachers, teacher-principal relations, teacher collaboration, and principal leadership. The Teacher Professional Community factor is characterized by items such as, "Teachers support the principal in enforcing school rules," "The principal takes a personal interest in the professional development of the

teachers," and "Teachers respect teachers who are trying new instructional approaches."

CROSS-VALIDATION AND CONFIRMATORY ANALYSIS

The proposed solution was then subjected to cross-validation and confirmatory factor analysis procedures to further substantiate its integrity. Cross-validation procedures involved the use of the Wrigley-Neuhause coefficient. In this procedure, the large sample was randomly bifurcated into two smaller groups, and then the smaller groups were compared to the larger one. Every possible combination of factors was compared, and coefficients were generated that indicated the extent of similarity across hypothesized like factors, as well as the extent of dissimilarity across hypothesized unlike factors.[12] Results of these analyses revealed acceptance coefficients of congruence.

Finally, to confirm the make-up of the final eight-factor solution, the items retained during exploratory analysis were subjected to a confirmatory multiple-group cluster analysis.[13] Hypothesized cluster membership was based on the exploratory analyses, and items were permitted to migrate iteratively to clusters that better explained item variance. In this stage of the analysis, the retention of items in the original hypothesized groupings serves to confirm the integrity of the exploratory structure. In all cases, the empirically-derived structure (i.e., eight-factor solution) was found to be superior to any of the alternatives, explaining a higher proportion of the item variance than the alternatives.

QUESTION 2: DID THE *CHILDREN ACHIEVING* REFORM SIGNIFICANTLY RELATE TO THE INITIAL STATUS AND GROWTH OF STUDENT ACHIEVEMENT?

RATIONALE AND HYPOTHESES

The second stage of analysis consisted of looking at the possible relationships between factors from the teacher survey, relevant demographic variables, and student achievement. Specifically, HLM, or hierarchical linear modeling analysis, was used to ascertain which combination of variables most significantly related to students' initial achievement status levels by school, as well as school-level student achievement growth over four years (1996-1999). It should be noted that at the time of the current analyses, student achievement data for the 1999-2000 school year was not yet available. HLM has been identified as an effective model of multi-level data structures.[14]

Poverty is one of the most important indices which has been consistently associated with low achievement. Specifically, poverty and other disproportionately high familial and

[12] E. Guadagnoli and W. Velicer, "A comparison of pattern matching indices." *Multivariate Behavioral Research* 26 (1991), pp. 323-343.

[13] H. Harman, *Modern factor analysis* (third edition). Chicago: University of Chicago Press, 1976.

[14] A.S. Bryk and S. Raudenbush, *Hierarchical linear models: Applications and data analysis methods.* Newbury Park, CA: Sage Publications, 1992.

community stressors common to urban areas are hypothesized to threaten children's healthy development and academic adjustment.[15] Evidence clearly indicates that students with the lowest levels of achievement are disproportionately represented in high-poverty schools.[16]

Moreover, School Safety and Obstacles to Student Learning are two elements of school climate that have also shown to be related to students' school performance. For example, poor student attendance, lack of parent involvement,[17] and perceived sense of safety have been identified as impediments to student learning and achievement. Moreover, there is a significant amount of support in the literature stating that the nature of the professional learning community is also related to how students perform in school. Finally, Distributed Leadership and teacher satisfaction have also been generally identified in the literature as important agents in promoting students' achievement.

A growing body of research positively links strong professional community to student achievement.[18] Fullan calls for a "reculturing" of schools that would produce collegial relationships characterized by high expectations for everyone's—adults and students—learning and performance. In such a transformation, staff would routinely reflect about their classroom practices, they would seek out new and promising ideas, and enlist the support of knowledgeable outsiders. *Children Achieving* sought to strengthen professional community by emphasizing results, raising expectations, and decentralizing decision-making. Performance targets would focus on school staffs' attention on outcomes and unify teachers in the pursuit of clear goals. District leaders would be persistent in their message that, "All children can learn if we believe they can." The expertise of teachers would be honored as faculties maintained authority over decisions about curriculum and instruction. Local school councils and small learning communities would offer ways for teachers to assess instruction, reflect, and plan.

Decisions about which variables to include in our regression analysis stemmed from a specific conceptual model, which framed our understanding of how certain factors related to students' performance. This conceptual model, or theoretical rationale, came from the work of our qualitative research team, as well as from the theoretical literature.

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[15] National Center for Education Statistics, *Urban schools: The challenge of location and poverty.*

[16] National Center for Education Statistics, *Urban schools: The challenge of location and poverty.* Garibaldi, "Four decades of progress and decline."

[17] J.S. Eccles and R.D. Harold, "Parent-school involvement during the early adolescent years." *Teachers College Record* 94 (1994), pp. 555-587.

[18] M.G. Fullan and A. Hargreaves, Eds., *Understanding teacher development.* New York: Teachers College Press, 1992; K.S. Newman, "Local caring: Social capital and social responsibility in New York's minority neighborhoods." In A.S. Rossi, Ed., *Caring and doing for others: Social responsibility in the domains of family, work, and community* (pp. 157-177). Chicago: University of Chicago Press, 2001. A. Brodsky, P.J. O'Campo, and R.E. Aronson, "PSOC in community context: Multi-level correlates of a measure of psychological sense of community in low-income, urban neighborhoods." *Journal of Community Psychology* 27 (1999), pp. 659-679.

It was important to carefully consider what variables to include in HLM analyses. In Philadelphia, for example, as in many urban school districts, many student, school, and teacher characteristics are correlated. The District's own research demonstrated that experienced teachers transferred to schools with higher achievement levels, lower levels of poverty, and fewer minority students. The fact that many of our variables were highly correlated was important. If all variables were included in equation models, it was likely that they would cancel each other out. In addition, because we had so many variables, including them all in the analyses would put a strain on the assessment, and make interpretation of results very complex.

After extensive preliminary analyses, and after examining descriptive statistics and correlation information, variables that emerged as the most distinct from others were included in the analyses.

We hypothesized that student achievement is a function of effective instructional practice, and that basic school conditions and the quality of the school environment are two important precursors to quality instruction. Based on this theoretical rationale, the variables that were included in the HLM analysis included poverty, and the factors from the teacher survey (School Conditions, Teacher Professional Community, and Reformed Practice).

EQUATION MODELS FOR HLM ANALYSIS

Various statistical methods were used to thoroughly investigate the relationship between the *Children Achieving* reform and longitudinal changes in reading achievement of fourth grade students. In particular, we used repeated measures analysis of variance to understand initially if there was a significant difference between the scores over time. When that analysis showed that there were indeed significant differences in school achievement over time $F(1, 172) = 135.93$, $p < .001$, we employed hierarchical linear modeling to understand what school-level variables predict the observed changes over time.

Graphs of the schools' achievement scores over time were plotted to see what trends emerged. These graphs of individual school average achievement over time revealed that there are different growth curves for different schools. For instance, some schools have a clear linear growth curve, with their lowest achievement in 1996, and their highest achievement in 1999. Others, however, show more complex patterns, including low achievement in 1996, climbing to a high level in 1998, and then decreasing slightly in 1999. After considering parabolic models, we concluded that the best predictive model to capture growth was the linear growth curve model, a simple model that assumes a linear relationship

between time and achievement.[19] This was done by using HLM.

HLM was developed specifically to address the hierarchical levels found in education, such as the organization of districts of schools, classrooms, and students.[20] The following HLM analysis addressed another type of data hierarchy: student achievement measured over time. As HLM allows for the partitioning of variance of the dependent measure by levels, we can use this method to demonstrate which school variables contributed to schools' initial achievement scores (i.e., 1996) and which contributed to growth (i.e., change from 1996 to 1999). This partitioning is achieved by formally modeling independent variables from each level. Below is the initial HLM model used in the analysis:

Initial HLM Model:

Level-1 Model
Y = B0 + B1*(Time) + R

Here, Y is the average fourth grade reading achievement score, B0 is the 1996 score or the initial status parameter, B1 is the linear growth parameter or the growth rate, and R is the error. The Level-1 model shows that we are modeling student achievement as a function of its intercept and time.

Level-2 Model
B0= G00 + U0
B1= G10 + U1

Note that each of the parameters from the Level-1 model (B0 and B1) are modeled as the dependent variable in the Level-2 model. Both B0 and B1 are allowed to randomly vary with their own intercept, G00 and G10, respectively.

Our final HLM model appears below:

Level-1 Model
Y = B0 + B1*(TIME) + R

Level-2 Model
B0 = G00 + G01*(LOWINC99) + U0
B1 = G10 + G11*(TSAFE) +
G12*(TOBST) + G13*(TLEAD) +
G14*(TTLN) + G15 + U1

Here, B0 is the initial status that is being predicted by its intercept (G00), incremental effect of poverty (G01), and error (U0). B1 is the linear growth parameter, or growth rate, that is being predicted by its intercept (G10), incremental effect of poverty concentration (G11), School Safety (G12), incremental effect of Obstacles to Student Learning (G13), incremental effect of Teacher Professional Community (G14), incremental effect of the Teaching and Learning Network (G15), and error (U1).

We have developed a model that says that 1996 reading achievement (B0) can be predicted by poverty; while the growth rate from 1996 to 1999 (B1) can be predicted by School Safety,

[19] It should be noted that the variability of school scores could be a potential problem when conducting analyses (i.e., school average scores can be variable from year to year). In this case, the 1996 scores were the baseline year for the SAT-9 administration in the District. Consequently, while it has been noted as something important to consider, it would be difficult to specifically ascertain score variability in this situation. School-level scores were utilized in analyses because student-level scores, which have been found to be less variable, were not available to us at this time.

[20] Bryk and Raudenbush, *Hierarchical linear models.*

Obstacles to Student Learning, Teacher Professional Community, and the Teaching and Learning Network.

RESULTS

Examining the growth in schools' reading scores using HLM revealed three important findings. First, it showed that low income was significantly related to the initial status of school achievement (i.e., the poorer the school, the lower the initial status of children's mean achievement in that school). This finding is supported by qualitative research reporting that schools with significantly high concentrations of poverty had higher percentages of students scoring Below Basic levels at the start of the reform than other schools at their level.

Second, our HLM analysis revealed that poverty is also associated with growth in achievement scores during the *Children Achieving* reform. Specifically, poorer schools experienced significantly more growth in the percentages of students scoring above the Basic Level over the course of the reform. Our qualitative research supports this finding by documenting cases in which some of the more impoverished schools experienced more growth in achievement scores than the average amount of growth for their school level.

The third important finding from the HLM analysis is that Teacher Professional Community was significantly related to the rate of growth for children's achievement scores (i.e., the stronger Teacher Professional Community reported by the teachers to be in a particular school, the faster the rate of growth in children's achievement scores in that school). This also appears to be strongly reflected in the qualitative accounts of factors that affect student achievement growth.

Results from the initial HLM model (see Table 7) show that the average starting point for all schools in 1996 was 34.49 NCE scores. On average, all schools improved their results in reading at a rate of 2.80 NCE scores per year for the four years measured.

Table 8 displays between-school differences on the average starting point and average rate of student achievement growth. Because a statistically significant difference between schools in their starting point was found (68.09, $p < .01$), this suggests that variability resulting from this difference should be taken into account in the analysis.

Moreover, our results indicate that schools' growth patterns, even though they were different, as noted earlier, were not significantly different over time (0.36, $p > .05$). This finding suggests that it is important to examine school conditions and variables as predictors of growth in achievement over time. The data in Tables 7 and 8 give credence to our analysis of school conditions and variables as predictors of growth rates.

TABLE 7. ESTIMATION OF THE AVERAGE 1996 SCORE AND GROWTH RATE FROM 1996 TO 1999

Parameter	Coefficient	Standard Error
1996 Average Score	34.49**	(0.69)
Growth Rate from 1996-1999	2.80**	(0.16)

Note: ** $p < .01$.

TABLE 8. BETWEEN-SCHOOL DIFFERENCES ON THE AVERAGE STARTING POINT AND RATE OF INCREASE

Variance Component	Coefficient
1996 Average Score	68.09**
Growth Rate from 1996-1999	0.36**

Note: ** $p < .01$.

TABLE 9. PREDICTING INITIAL SCORE BY POVERTY

Parameter	Coefficient	Standard Error
Intercept	40.63**	(0.41)
Poverty	-0.43**	(0.03)

Note. ** $p < .001$.

Our initial findings showed a negative correlation between a school's initial status and the rate of growth ($r = -.47$). This means that schools with lower scores in 1996 had higher growth rates than schools with higher initial scores.

The next stage of our analysis involved investigating how school-level variables were related to each school's initial status and to the growth of student achievement. Results from the final HLM model revealed that poverty was a significant predictor of initial achievement status (see Table 9). The negative coefficient (-0.43, $p < .01$) means that the poorer the school, the lower its achievement in 1996. This is supported by qualitative reports that schools with significantly high concentration of poverty had higher percentages of students scoring Below Basic levels at the start of the reform when compared to other schools at their level.

Examining results from the final HLM model that looked at how school conditions and school variables affected growth in achievement, we found that Teacher Professional Community was a significant predictor of growth over time, controlling for incremental effects of School Safety, Obstacles to Student Learning, and the implementation of the Teaching and Learning Network

TABLE 10. PREDICTING GROWTH BY SCHOOL SAFETY, INSTRUCTIONAL OBSTACLES, STAFF COLLEGIALITY, AND IMPLEMENTATION OF THE TEACHING AND LEARNING NETWORK

Parameter	Coefficient	Standard Error
Intercept	-9.84*	(3.94)
School Safety	-0.02	(0.06)
Obstacles to Student Learning	0.03	(0.05)
Teacher Professional Community	0.17**	(0.05)
Teaching and Learning Network	0.05	(0.05)

*Note: * $p < .05$, ** $p < .01$.*

(see Table 10). That is, the more distributed the leadership, the faster the rate of growth in achievement scores. This appears to be strongly supported by the qualitative accounts of factors that affect student achievement growth. Other school conditions such as School Safety had a non-significant negative relationship with the growth rate of student achievement, indicating the less safe a school, the lower the rate of growth. On the other hand, the fewer Obstacles to Student Learning, the higher the growth rate. And lastly, our measure of the *Children Achieving* reform had a non-significant positive relationship with the growth rate.

SUMMARY

Our longitudinal analysis of fourth grade reading achievement scores reveals that elementary achievement scores grew an average of 2.8 NCE points per year. Across the four years of reform, this adds up to an average total growth of 8.4 NCE points, about 2/5ths of a standard deviation. According to Slavin and Fashola,[21] this amount of growth is educationally significant.

Schools that have a higher concentration of poor students tended to have the lowest 1996 average scores. However, these schools also grew the fastest over time.

After controlling for the incremental effects of basic school environmental factors such as School Safety and Obstacles to Student Learning, Teacher Professional Community remained a significant predictor of growth in achievement scores over time.

Finally, *Children Achieving* reform variables (i.e., Curriculum, Small Learning Communities, Teaching and Learning Communities, and Reformed Practice) did not emerge as statistically significant in predicting the rate of growth in school achievement. One of the limitations of the HLM procedure is its ability to control for variables that

[21] R.E. Slavin and O.S. Fashola, *Show me the evidence! Proven and promising programs for America's schools.* Thousand Oaks, CA: Corwin Press, 1998.

might be correlated. Based on the HLM analyses, results seem to suggest that certain variables were masked by others, supporting our earlier hypothesis that many of our school characteristics and *Children Achieving* reform variables are related. More specifically, when models that included isolated groupings of school characteristics and reform variables were examined, different variables did demonstrate some significant relationships with the initial student achievement status and growth of student scores. In reality, however, the reform component and school characteristics exist simultaneously, and it was critical to reflect this in the equation models. When all variables were entered simultaneously, far fewer significant relationships emerged, suggesting that the effects of certain components were being cancelled out by the presence of other reform variables also included in the model that were related to each other (multi-collinearity).

Given these circumstances, the quantitative analysis team conducted further analyses using alternative methods that better addressed the issue that many of the variables were in fact related. This was done using another analysis method that better controls for all variables in a given equation model: logistic regression.

QUESTION 3: DO IDENTIFIED SCHOOL-LEVEL CHARACTERISTICS (I.E., SCHOOL SAFETY, SCHOOL CLIMATE, OBSTACLES TO STUDENT LEARNING), TEACHER DEMOGRAPHICS, SCHOOL CONDITIONS, AND *CHILDREN ACHIEVING* REFORM VARIABLES SIGNIFICANTLY RELATE TO FOURTH GRADE READING ACHIEVEMENT?

RATIONALE AND HYPOTHESES

In an effort to more specifically understand and unpack how each of the school-level characteristics and *Children Achieving* reform components related to student achievement, logistic regression analysis was used. Logistic regression allowed us to look at the relative relationship of each of our independent variables (i.e., school characteristics and *Children Achieving* reform variables) with student achievement controlling for all other independent variables in the analysis. Specifically, logistic regression is a regression procedure used when the outcome or dependent variable is categorized into two groups (i.e., average or above the mean reading scores versus below the mean reading scores). In essence, logistic regression allows you to calculate the probability of ending up in one of the two outcome groups (i.e., below the mean in reading) based on whether or not you have certain independent variable

characteristics (i.e., in a school with low Teacher Professional Community). In this procedure, the odds ratio is a practical statistic that provides an index to interpret the relative likelihood of being classified in a specific outcome group based on having specific characteristics or not.

For this set of analyses, the relative import of teacher demographics, school characteristics, and *Children Achieving* reforms on fourth grade reading achievement was investigated. Table 11 displays the variables included in the model.

RESULTS

Looking at the entire fourth grade sample, less teacher-reported School Safety and more teacher-reported Obstacles to Student Learning significantly increased the odds of children scoring below the mean in reading achievement. In other words, schools with less teacher-reported safety were 1.45 times more likely to have a mean fourth grade reading achievement score below the mean.

TABLE 11. EXPLANATORY AND OUTCOME VARIABLES FOR LOGISTIC REGRESSION MODELS INVESTIGATING RELATIONSHIPS TO STUDENT ACHIEVEMENT

Independent (Explanatory) Variable	Dependent (Outcome) Variable
Teacher Demographics	Fourth Grade Reading Achievement
Amount of Education	
Certification Status	
Number of Years Teaching in the District	
School Characteristics	
Poverty	
School Size (Student Enrollment)	
Survey-measured School Characteristics	
School Safety	
School Obstacles to Student Learning	
Survey-measured *Children Achieving* Reform Components	
Teacher Professional Community	
Small Learning Communities	

TABLE 12. ODDS RATIOS FOR RELATIONSHIPS BETWEEN STUDENT, TEACHER CHARACTERISTICS, *CHILDREN ACHIEVING* REFORMS, AND FOURTH GRADE READING ACHIEVEMENT: TOTAL FOURTH GRADE SAMPLE

Explanatory Variable	Below the Mean Fourth Grade Reading Achievement	
	Sig. Level	Odds Ratio
School Safety (Teacher-reported = Low)	.0511	1.45
Obstacles to Student Learning (Teacher-reported = High)	.0401	1.33

TABLE 13. ODDS RATIOS FOR RELATIONSHIPS BETWEEN STUDENT, TEACHER CHARACTERISTICS, *CHILDREN ACHIEVING* REFORMS, AND FOURTH GRADE READING ACHIEVEMENT: EXTREME POVERTY SAMPLE

Explanatory Variable	Below the Mean Fourth Grade Reading Achievement	
	Sig. Level	Odds Ratio
Low Teacher-reported School Safety	.0001	1.57
High Teacher-reported Obstacles to Student Learning	.0500	1.41

When examining the extreme poverty sample, the same relationships are not only observed between school safety, instructional obstacles, and fourth grade reading achievement, but they emerge as more significant. In this group, children in schools where teachers report concerns about safety are 1.57 times more likely to score below the mean in reading achievement. Moreover, these same children are now 1.41 times more likely to demonstrate poor reading achievement if they are in schools with more teacher-reported obstacles to student learning.

QUESTION 4: DO IDENTIFIED SCHOOL-LEVEL CHARACTERISTICS, FOURTH GRADE READING ACHIEVEMENT, AND CERTAIN *CHILDREN ACHIEVING* REFORM VARIABLES SIGNIFICANTLY RELATE TO TEACHER-REPORTED SCHOOL CONDITIONS AND OTHER ASPECTS OF *CHILDREN ACHIEVING*?

RATIONALE AND HYPOTHESES

In the second set of logistic regression analyses, we looked at the relative import of Teacher Demographics, School Characteristics, and Small Learning Communities on School Safety, School Obstacles to Student Learning, and Teacher Professional Community. Two sets of logistic models were run. The first set included the entire fourth grade sample, and the second set included those schools that were labeled as "extreme poverty." Extreme poverty was defined as those schools where at least 85 percent of their students qualified for free or reduced lunch. Please refer to Appendix C for a more detailed description of how this variable was created. Because poverty has been so widely recognized as a powerful deterrent to student achievement, it was important to our team to investigate potential effects of *Children Achieving* on different poverty groups. In other words, while the logistic regression procedure examined relationships between reform components and student achievement

having statistically controlled for any potential effects of poverty, it was also important to study whether relationship patterns between school components and student achievement differed among different poverty sub-populations. For both samples three logistic models were run in which all of the independent models were used: one looking at unsafe schools, one looking at Obstacles to Student Learning, and one looking at less Teacher Professional Community.

RESULTS

Looking at the entire fourth grade sample, higher poverty, larger school size, and dissatisfaction with Small Learning Communities all significantly increased the odds of being in an unsafe school, a school with more Obstacles to Student Learning, and schools with a weaker sense of Teacher Professional Community. Finally, teachers with 6-12 years of experience were more likely than new teachers to be in a school with more Teacher Professional Community. Teachers with more than 10 years of experience in the District were more likely to be in safer schools, schools with fewer Obstacles to Student Learning, and schools with more Teacher Professional Development than first-year teachers.

TABLE 14. EXPLANATORY AND OUTCOME VARIABLES FOR LOGISTIC REGRESSION MODELS INVESTIGATING RELATIONSHIPS TO *CHILDREN ACHIEVING* REFORM COMPONENTS

Independent (Explanatory) Variable	Dependent (Outcome) Variable
Teacher Demographics	Being in an Unsafe School
Amount of Education	Being in a School with Obstacles to Student Learning
Certification Status	Being in a School with Low Teacher Professional Community
Number of Years Teaching in the District	
School Characteristics	
Poverty	
Fourth Grade Reading Achievement Scores	
School Size (Student Enrollment)	
Survey-measured *Children Achieving* Reform Components	
Small Learning Communities	
Curriculum, Assessment, Accountability	
Teaching Learning Network	
Reformed Practice	

TABLE 15. ODDS-RATIOS FOR RELATIONSHIPS BETWEEN STUDENTS/TEACHERS CHARACTERISTICS AND *CHILDREN ACHIEVING* REFORMS: TOTAL FOURTH GRADE SAMPLE

Explanatory Variable	Safety		Obstacles		Collaboration	
	Sig. Level	Odds-Ratio	Sig. Level	Odds-Ratio	Sig. Level	Odds-Ratio
Low Income (1999)	.0000 +	20.45	.0000 +	18.64	.0007 -	.23
Student Enrollment (1999)	.0034 +	1.00	.0001 +	1.00	.0103 -	1.00
Small Learning Communities	.0000 +		.0000 -	.98	.0000 +	1.11
Fourth Grade Reading Achievement					.0087 +	1.02
Teacher Education						
Bachelor's						
Master's	.0360 -	.69				
Master's +						
Teacher Teaching Experience						
1st year						
2-5 years						
6-10 years					.0334 +	1.39
11-15 years	.0290 -	.74			.0418 +	1.36
> 15 years			.0316 +	1.53		

These findings suggest relationships between certain school characteristics and the degree to which certain aspects of the *Children Achieving* reform were operating in a school, as perceived by the teachers. Specifically, teachers with more experience were more likely to be in schools with fewer Obstacles to Student Learning, and a greater sense of Teacher Professional Community. Schools with higher fourth grade reading scores were more likely to have a greater sense of Teacher Professional Community. Schools with Small Learning Communities were more likely to have fewer Obstacles to Student Learning and more Teacher Professional Community.

Having previously documented through the HLM analysis that Teacher Professional Community was found to relate to the growth of reading achievement over time, it is important to note that our analysis shows that certain school characteristics are *indirectly related* to student achievement. Teacher experience and Small Learning Communities have an indirect influence on fourth grade reading achievement in the presence of a better-developed Teacher Professional Community.

Looking at the extreme poverty sample, smaller schools were more likely to have fewer Obstacles to Student Learning and a greater sense of Teacher Professional Community. Schools with higher fourth grade reading scores were more likely to have a greater sense of Teacher Professional Community. Moreover, teachers engaging in Small Learning Communities were more likely to be in safer schools, have fewer Obstacles to Student Learning, and experience a greater sense of Teacher Professional

TABLE 16. ODDS-RATIOS FOR RELATIONSHIPS BETWEEN STUDENTS/TEACHERS CHARACTERISTICS AND *CHILDREN ACHIEVING* REFORMS: EXTREME POVERTY SAMPLE

Explanatory Variable	Safety		Obstacles		Collaboration	
	Sig. Level	Odds-Ratio	Sig. Level	Odds-Ratio	Sig. Level	Odds-Ratio
Student Enrollment (1999)			.0225 +	1.00	.0212 -	1.00
Small Learning Communities	.0000 +	1.02	.0000 -	.98	.0000 +	1.11
Fourth Grade Reading Achievement					.0087 +	1.02
Teacher Education						
Bachelor's						
Master's			.0406 -	.77		
Master's +						
Teacher Teaching Experience						
1" year						
2-5 years						
6-10 years						
11-15 years						
> 15 years						

Community. Finally, teachers with more than Master's Degrees were more likely to be in schools with fewer Obstacles to Student Learning than teachers with Bachelor's degrees.

Tables 15 and 16 show the significance and odds-ratios of the variables that relate to fourth grade reading achievement scores. It is important to note that while many of the relationships in the total and high-poverty concentration samples are similar, the odds-ratios in the high-poverty concentration sample are larger, indicating a higher likelihood of the specific outcome.

To summarize, well-implemented Small Learning Communities appear to provide good learning environments for students regardless of their poverty level. Moreover, Small Learning Communities are better implemented in safer schools, schools in which there is more Teacher Professional Development, and schools with fewer Obstacles to Student Learning.

SUMMARY OF FINDINGS

The results of our analyses provide support for the hypothesis that *Children Achieving* reforms are related to students' school achievement, and that *Children Achieving* reform components demonstrate significant relationships to fourth grade reading achievement. Specifically, our general conclusions are a function of a sequential set of analysis steps taken to pursue our hypotheses.

First, we analyzed the teacher survey to understand what teacher, school, and reform constructs the survey was measuring. The following constructs were found:

- Basic School Environment (Quality of School Environment, School

Safety, School Obstacles to Student Learning)

- Teacher Professional Community (Teacher Professional Community, Teacher Leadership)

- Reform and Practice (Small Learning Communities, Teaching and Learning Network, Curriculum, Assessment, and Accountability)

Next, we used these constructs and other relevant variables (i.e., low income) in an HLM analysis to see whether these reforms had significant effects on the growth of student achievement. We found in our hierarchical model that poverty explained the initial achievement status of schools, and poverty and Teacher Professional Community explained growth in student achievement during the *Children Achieving* reform.

Then we explored how certain school-level characteristics related to positive learning environments for students in the poorest schools, and how they related to the implementation of *Children Achieving*. We also investigated whether these relationships differed as a function of poverty concentration in an effort to ease out the impact of the reform components controlling for the powerful effects of poverty. Here we used logistic regression analysis, a procedure that better allowed us to assess relationships between sets of correlated variables and specific outcomes, using only the 1999 data. While these models are not designed to explain growth as HLM analysis is, they can help us understand how individual variables (while controlling for the effects of all other variables included in the model) affect the odds of schools or students being classified into a particular group (i.e., unsafe school, below the mean in reading achievement).

The results of the logistic regression analyses indicate that schools with more Obstacles to Student Learning and schools with more safety concerns have a higher probability (approximately one-and-one-half times) that fourth graders will score below the mean in standardized reading achievement. These relationships were even stronger among high-poverty schools. Students in schools with higher poverty levels were even more likely to score below the mean in reading achievement.

The results of the logistic regression models also demonstrate that well-implemented Small Learning Communities appear to provide good learning environments. Small Learning Communities were better implemented in safer schools, in schools where there was a greater sense of Teacher Professional Community, and fewer Obstacles to Student Learning. Results showed that schools with higher concentrations of poverty but with well-developed Small Learning Communities were more likely to have fewer Obstacles to Student Learning and a greater sense of Teacher Professional Community as compared to the total fourth grade sample. Small Learning Communities had a greater positive impact on Obstacles to Student Learning and Teacher Professional

Community, the higher the concentration of poverty in schools.

These findings support our hypothesis that there is a link between teachers' perceptions of school characteristics, teachers' sense of efficacy and collaboration, and students' school performance. Small Learning Communities were found to significantly relate to both school characteristics (i.e., School Safety, Obstacles to Student Learning) and teacher characteristics (i.e., Teacher Professional Community) when the school and teacher characteristics were related to students' achievement scores at the school level. Based on this evidence, it can be argued that Small Learning Communities indirectly relate to student achievement, because their existence increases the likelihood of having safer schools, schools with fewer Obstacles to Student Learning, and a greater sense of Teacher Professional Community. These factors relate to student achievement through our HLM and logistic regression analyses.

Finally, school size (as measured by school enrollment) and teacher experience were shown to have some relationship to both Obstacles to Student Learning and teacher-reported Professional Community. Small schools with more experienced teachers were more likely to have fewer instructional obstacles and a better-developed sense of professional community.

LIMITATIONS OF THE STUDY

While the quantitative analysis of *Children Achieving* has contributed to a better understanding of how to improve educational systems, some limitations are worth noting. First, while the study used a broad spectrum of factors thought to relate to school performance, it is clear that there may be other relevant factors also, and hence worthy of consideration. For example, research has suggested that the home environment[22] is an important variable to consider when examining relationships between at-risk status and school performance.

Similarly, while epidemiological studies have been noted as valuable contributions to the literature,[23] identifying factors thought to **protect** a child from risk of poor school performance are needed. Cicchetti and Lynch,[24] for example, argue that understanding the ways protective

[22] E.F. Dubow and M.F. Ippolito, "Effects of poverty and quality of the home environment on changes in the academic and behavioral adjustment of elementary school-age children." *Journal of Clinical Child Psychology* 23 (1994), pp. 401-412. J. Crane, "Effects of home environment, SES, and maternal test scores on mathematics achievement." *Journal of Educational Psychology* 89 (1996), pp. 306-314.

[23] S.L. Buka and L.F. Lipsitt, "Toward a developmental epidemiological." In S.L. Friedman and H.C. Haywood (Eds.), *Developmental follow-up: Concepts, domains, and methods.* San Diego: Academic Press, 1994.

[24] D. Cicchetti and M. Lynch, "Toward an ecological/transactional model of community violence and child maltreatment: Consequences for children's development." *Psychiatry: Interpersonal and Biological Processes* 56 (1993), pp. 96-118.

factors can influence development is critical to best supporting children's needs. While some factors in the study could also be interpreted as protective factors, understanding others would be a valuable extension to extant research, such as parent involvement, enrollment in after-school enrichment programs, learning behaviors, and participation in school activities.[25]

Lastly, it is worth noting that the design of the *Children Achieving* evaluation did not have a specifically identified control group. Because *Children Achieving* was a systemic reform that was implemented District-wide, analysis designs looked at variation across schools to assess the degree and quality of program success.

CONTRIBUTIONS, REMAINING QUESTIONS, AND FUTURE DIRECTIONS

The quantitative analysis of *Children Achieving* has produced several contributions to our understanding of systemic reform. First, this investigation empirically documents—in a reliable and valid way—the existence of a multi-faceted reform. This provides the basis for further research on how specific school reform components relate to student achievement and school performance. Without a solid understanding of the latent structure of the reform, identifying relationships between the reform and various outcomes (i.e., student achievement) would be compromised.

Second, identifying additional school-level and community-level factors—in addition to individual characteristics—that potentially relate to student achievement, and understanding how these school characteristics, student characteristics, school outcomes, and school reform variables simultaneously relate, directly informs the design of effective services. For example, recent literature has suggested that a person's psychological sense of community, and other community-level factors such as social cohesiveness could be related to children's performance in school.[26] To date, however, few studies have examined these questions in a manner that addresses the complex ways in which schools and teachers affect student school performance.

Similarly, this investigation is population-based, and focuses on an especially vulnerable group of children. With the consequences of educational failure being pronounced for children in

[25] E.G. Epps, "Race, class, and educational opportunity: Trends in the sociology of education." *Sociological Forum* 10 (1995), pp. 593-608.

[26] Brodsky, O'Campo, and Aronson, "PSOC in community context: Multi-level correlates of a measure of psychological sense of community in low-income, urban neighborhoods." *Journal of Community Psychology* 27 (1999), pp. 659-679. C.J. Coulton, J.G. Hopps, and R.H. Morris (Eds.), *Social work at the millennium: Critical reflections on the future of the profession* (pp. 175-206). New York: The Free Press, 2000. S.M. Low, "The edge and the center: Gated communities and the discourse of urban fear." *American Anthropologist* 103 (2001), pp. 45-58. K.S. Newman, "Local caring: Social capital and social responsibility in New York's minority neighborhoods."

large urban centers,[27] information on such children is critical. In addition, the majority of studies in the literature utilize small sample sizes, which limits the type of statistical analyses that can be used, compromises the power and rigor of statistical findings, and limits the ability to generalize results. Utilizing a population-based sample and providing replication analyses yield results that can be considered generalizable to elementary school-aged students in similar large urban environments. Furthermore, documenting that certain school characteristics and reform components demonstrate discernable relationships with children's performance in school regardless of a child's life circumstances highlights the notion that schools' structures and characteristics can be shaped to better serve their students.

Finally, the current study serves as a valuable addition to the literature because it applies multivariate methods to the examination of relationships. By utilizing multiple logistic regression, the import of each risk factor on each school outcome was simultaneously assessed having controlled for the potential role of other important risk factors. Multivariate methods afford a more comprehensive and parsimonious understanding of the complex relationship among factors in a child's life and how those factors influence a child's performance in school, as well as how different parts of a school system relate to one other.

REMAINING QUESTIONS AND FUTURE DIRECTIONS

With multiple years of data about a school district, there is a considerable amount of promising future research to be conducted. Some of the following projects could be pursued.

- Extend the current investigation to middle and high school years. How are results similar? How are they different?
- Extend the current results to include student achievement in mathematics and science. How are results similar? How are they different? What trends emerge? Does improved reading predict subsequent improvements in other subjects?
- Extend current results to track a cohort of students over multiple years, or a cohort study across elementary, middle, and high school. How do children's achievement scores change over time as a function of the reform and other teacher/school characteristics?

[27] National Center for Education Statistics, *The condition of education 1996.*

APPENDIX A. ANALYSIS OF THE SURVEY OF PHILADELPHIA TEACHERS

INTRODUCTION

As part of the evaluation of *Children Achieving*—the School District of Philadelphia's comprehensive reform initiative funded in part by the Annenberg Foundation—the Consortium for Policy Research in Education and its partners, particularly the OMG Center for Collaborative Learning, developed, piloted, administered, and analyzed a survey of Philadelphia public school teachers. The survey utilized in the analyses for this report was administered in June 1999. The following describes the technical and methodological background to the survey.

DEVELOPMENT OF THE SURVEY

Development of the survey began in early 1996. Members of the survey design team—which included members from the Philadelphia Federation of Teachers (PFT) and the School District of Philadelphia, among others—reviewed and revised items gathered from other surveys of public school teachers. New items were developed as necessary to reflect the uniqueness of the Philadelphia context and of the *Children Achieving* initiative. Mark Smylie, from the Consortium for Chicago School Research, served as design consultant for the group. Teachers representing Philadelphia's elementary, middle, and high schools piloted the survey and their changes and comments were incorporated into the final version.

RESPONDENTS

In 1999, over 12,000 teachers and professional staff were asked to participate in completing the survey. PFT Building Representatives were enlisted to distribute the surveys, collect completed surveys, and return them to the OMG Center for Collaborative Learning. Most school principals offered teachers time during end-of-the-year staff meetings for completion of the survey. A letter jointly signed by the Superintendent, David Hornbeck, and the PFT President, Ted Kirsch, accompanied the survey and lent importance to the completion of the survey.

The table below outlines the response rates from teachers by grade level.

Several efforts were made to contact the PFT Building Representatives who did not return a survey packet for their school. Phone calls to both home and school, by members of the PFT and OMG staff, were not successful.

DATA QUALITY CONTROL

The surveys were printed on machine-readable forms, and were scanned, reviewed, corrected, and re-scanned in August 1999.

TABLE A.1. RESPONSE RATES AND NUMBERS TO THE CPRE TEACHER SURVEY, 1998-1999

	Percent Response	N Response
Elementary	66	3,254
Middle	54	852
High	58	1,224
TOTAL	63	5,330

ERRORS IN SURVEYS

Despite efforts to avoid them, every survey has errors. There are three types of error that generally occur in survey research: sampling, non-response, and human error. Estimates of the amount of error and its effects on the results of the survey are dependent on the sample size, that is, the number of respondents to the survey. In general, the effects of error decrease as the number of respondents increases.

Non-response bias is likely to result from non-participating schools and teachers who did not respond to the survey. Estimating how non-responding teachers and school differ from those that did respond is difficult. Basic employee demographic data helps us examine the difference between teachers in schools that participated in the survey and those who did not. Comparing data measuring race/ethnicity, gender, and teacher experience and education level, there were no significant differences between our sample and the teacher population as a whole in the School District.

Within-school non-response is harder to evaluate. Since the distribution of the survey was random and anonymous, we have no way of knowing which teachers within a school responded to the survey and which did not. In our effort to understand the effects of error on the results of the survey, we can only assume in both cases that it is likely that non-responding schools and teachers are somehow different from those that did respond, and keep that caveat in mind as we interpret the results of the survey.

DATA ANALYSIS

A series of detailed steps were executed to investigate the reliability and construct validity of the survey. Specifically, these steps were followed in an effort to clarify and understand the inherent meaningful factors that compose the teacher survey.

DEFINING VARIABLES

Each of the independent variables were collected from all Philadelphia teachers in census surveys administered in 1997 and 1999, as well as from administrative record data regularly collected by the School District.

The following list of criteria was used to decide which variables in each group to keep as a representative of the category:

- Each school has a measure of this variable.
- This variable has the highest correlation with the dependent variable among other similar variables.

- This variable is operationalized in a way that maximizes its relationships with the dependent variable.
- This variable would be expected to predict achievement based on previous research and improvement planning.
- School scores for each of the scales were created by averaging individual respondents.

DATA PREPARATION

In this stage, the sample was screened for missing data on all questions being analyzed. In cases where there was missing data, an imputation method was utilized using Ward's multiple regression coefficient, which makes the best prediction of particular response given each of the other responses to that particular item.

ITEM RELIABILITY

Second, the internal consistency of an alpha program was run on each of the scales to assess the internal consistency of the measure and to conduct item analysis. Item total correlations were examined as well as skewness and kurtosis levels of each item in an effort to detect those items whose descriptive nature was significant discrepant from normal.

CONSTRUCT VALIDITY

In order to establish and provide evidence for construct validity of the survey, a series of exploratory and confirmatory factor analysis procedures were executed. These procedures are outlined in detail in the body of the report.

ITEM CONVERSION

In a final step, each factor was subjected to an area conversion process with a mean of 50 and a standard deviation of 15. This step allows for the comparison of students from different schools. All analyses were then conducted on the area-converted standard scores.

APPENDIX B. 1998-1999 TEACHER SURVEY—ITEM 0-BASED FACTOR DESCRIPTIONS

TABLE B.1. QUALITY OF SCHOOL ENVIRONMENT—QUALITY OF SCHOOL EXPERIENCE

1999 Philadelphia Teacher Survey: Items Loading on this Factor
• My students feel safe coming to and going from this school.
• I feel safe coming to and going from this school.
• I feel safe in the building during the day.
• Guns or weapons are a problem in this school.
• Crime is a problem in this school.
• The level of student misbehavior in this school interfered with my teaching.
• Students are generally well behaved in the classroom.
• I feel respected by students at this school.
• Student behavior has changed in the past two years.
• How students get along with each other has changed over the past two years.
• How teachers get along with students has changed over the past two years.
• Student attendance has changed in the past two years.
• Sense of community in the school has changed in the past two years.
• The quality of the Curriculum, Assessment, and Accountability has changed over the past two years.
• The quality of instruction has changed over the past two years.
• The quality of student academic performance has changed over the past two years.
• My commitment to the school has changed over the past two years.
• My teaching effectiveness has changed over the past two years.
• My job satisfaction has changed over the past two years.

TABLE B.2. TEACHER PROFESSIONAL COMMUNITY

1999 Philadelphia Teacher Survey: Items Loading on this Factor
• At this school, teachers work together to do "what is best for kids."
• Teachers in this school share and discuss student work with other teachers.
• Teachers talk about instruction in the teachers' lounge, faculty meetings, etc.
• Teachers respect those who are trying new instructional approaches.
• Teachers work together to design instructional programs that can be used in their classrooms.
• Teachers at this school make a conscious effort to coordinate their teaching with instruction at other grade levels.
• Teachers at this school respect those colleagues who are an expert at their craft.
• Teachers at this school make a conscious effort to coordinate their teaching with others at the same grade levels.
• I help maintain discipline in the entire school, not just my classroom.
• I take responsibility for improving the school.
• I feel responsible to help teachers do their best.
• I feel responsible that all students learn.
• Teachers try to understand parents' problems and concerns.
• Teachers work closely with parents about how they can help their children.
• Teachers in this school have high expectations for student learning.

TABLE B.3. SCHOOL SAFETY

1999 Philadelphia Teacher Survey: Items Loading on this Factor
• I am part of an environment that applies disciplinary rules more consistently in the school.
• I am part of an environment that insists that all students wear picture identification badges.
• I am part of an environment that creates alternative programs for students who consistently obey school rules.
• I increase parents' presence in the school.
• I am part of an environment that increases the number of school security personnel.
• I help to create small learning communities to strengthen the relationship between teachers and students.

TABLE B.4. OBSTACLES TO STUDENT LEARNING

1999 Philadelphia Teacher Survey: Items Loading on this Factor
• Students have a lack of basic skills.
• Students have a lack of motivation.
• There are too few alternative academic supports for students.
• There is high student mobility in and out this school.
• There is poor student attendance.
• There is a lack of parental involvement in this school.
• There is an inability to access community supports (i.e., health or mental health services) in this school.
• There is not enough additional help in this school (i.e., classroom assistants, co-teachers, parent volunteers).
• There is a great varying ability of students in my class.
• Students lack appropriate student and work habits in my class.

TABLE B.5. CURRICULUM, ASSESSMENT, AND ACCOUNTABILITY— *CHILDREN ACHIEVING* REFORM

1999 Philadelphia Teacher Survey: Items Loading on this Factor

- The professional development experiences sponsored by my cluster and school this year have helped me prepare my students for the SAT-9.

- The "Philadelphia Cluster Frameworks":

  - Are helpful in planning lessons for my class.
  - Provide me with sufficient detail about what students need to know to meet district standards.
  - Have led me to make significant changes in what I teach.
  - Have led me to change my teaching methods.
  - Set forth developmentally appropriate expectations for my students.
  - Have triggered a discussion in my school about what we teach.
  - Have helped improve the integration of subject matter.
  - Have helped me identify content areas in which I should increase my understanding.
  - Were accompanied by the resources necessary to implement them.
  - Explain the order or sequence of the subject matter to be taught.

- My school's performance index score is a reasonable reflection of the school's progress.
- I have made changes in my teaching strategies to help our school achieve this year's performance index target.
- My school has adequate instructional resources to achieve this year's index target.
- It is fair to hold teachers responsible for student achievement.
- The Professional Responsibility system causes teachers to increase their efforts to improve learning.
- I believe that the SAT-9 is a good measure of the knowledge and skills reflected in the district's content standards.
- I believe that the SAT-9 is a good measure of the knowledge and skills my students need.
- I have the Curriculum, Assessment, and Accountability materials I need to enable my students to do well on the SAT-9.
- I believe that the SAT-9 has caused teachers to focus their instruction on important subject matter.
- The SAT-9 is well aligned with the subject matter I teach in my class.

TABLE B.6. SMALL LEARNING COMMUNITIES (SLC)—*CHILDREN ACHIEVING* REFORM

1999 Philadelphia Teacher Survey: Items Loading on this Factor
• My SLC has a clear theme that shapes my Curriculum, Assessment, and Accountability and instruction.
• The majority of SLC meeting time is devoted to issues about Curriculum, Assessment, and Accountability and instruction.
• The faculty assigned to my SLC have provided common planning time.
• My SLC has well-defined space or location within the school.
• The teachers in my SLC make decisions about Curriculum, Assessment, and Accountability and instruction
• Students in my SLC have access to all the curricular options offered by my school.
• I am involved in making decisions about the SLC budget.
• I am involved in reviewing student work with other teachers.
• I plan lessons with members of my SLC.
• I have co-taught classes.
• I have observed others' classes.
• I have developed and shared assessment tools and practices.
• I have identified individual intervention strategies for students who needed additional assistance.
• I have re-grouped students for instructional purposes.
• I have met with all SLC faculty members.
• I have reviewed curricula for alignment with district standards.
• I have met with parents to address student needs.
• I have undertaken projects that involved all students and faculty in my SLC.

TABLE B.7. TEACHING AND LEARNING NETWORK (TLN)— PROFESSIONAL DEVELOPMENT, *CHILDREN ACHIEVING* REFORM

1999 Philadelphia Teacher Survey: Items Loading on this Factor
• The TLN has been sustained and focused as opposed to short-lived and unrelated.
• The TLN has deepened my understand of subject matter.
• The TLN has deepened my understanding of how students learn subject matter.
• The TLN has led me to make changes in my teaching.
• The TLN staff have provided me with useful Curriculum, Assessment, and Accountability resources.
• The TLN staff have provided me with useful assessment tools.
• The TLN staff have the expertise to help me implement the standards and Curriculum, Assessment, and Accountability frameworks in my classroom.
• The services offered by the TLN meet my needs as a teacher.
• The TLN staff in my cluster have the knowledge and skills they need to help me improve my classroom practice.

TABLE B.8. TEACHER PRACTICE—*CHILDREN ACHIEVING* REFORM

1999 Philadelphia Teacher Survey: Items Loading on this Factor

Estimate the change this year in how often you asked your students to...

- Conduct research or collect data [about mathematics].
- Create charts, graphs, or tables.
- Discuss different ways to solve math problems.
- Write about math concepts or about how to solve math problems.
- Write their own math problems.
- Work in pairs or small groups [in math class].
- Work on a [math] group project.
- Work on an individual [math] project.
- Conduct research or collect data [about reading, English, or language arts].
- Critique other students' work [reading, English, or language arts].
- Discuss something they read.
- Give oral reports.
- Play educational games.
- Read aloud.
- Read silently to themselves.
- Write about something they read.
- Work in pairs or small groups [reading, English, or language arts].
- Work on a [reading, English, or language arts] group project.
- Work on an [reading, English, or language arts] individual project.

APPENDIX C. RATIONALE FOR AND DESCRIPTION OF VARIABLE CATEGORIES

1. All dichotomous variables were appropriately coded 1 and 0, respectively to reflect a risk and non-risk group.

2. The frequency distributions of all continuous variables were also examined. Here, logical cut-off points were established based on the distribution, quintiles, and school-level average information. Based on these criteria, the following variables were dichotomized at the 40th percentile:

    - School Safety (40th percentile cut-off = 44.71)
    - Instructional Obstacles to Learning (40th percentile cut-off = 45.68)
    - Teacher Professional Community (40th percentile cut-off = 48.00)
    - Poverty Concentration (40th percentile cut-off = .851)

3. The frequency distributions of teacher demographic continuous variables were also examined, logical cut-off points were established based on the distribution, and categories with the largest number were identified as the reference group for all continuous variables.

TABLE C.1. DESCRIPTION OF VARIABLE CATEGORIES

Variable	Categorization Description
Teacher Demographics	
Amount of education	1 = Bachelor's Degree 2 = Master's Degree 3 = Master's + additional education
Certification status	1 = certification in subject teaching 0 = no certification
Number of years teaching in the district	1 = 1" year teacher 2 = 2-5 years teaching 3 = 6-10 years teaching 4 = 11-15 years teaching 5 = >15 years teaching
School Characteristics	
Poverty	1 = Extreme poverty (80 percent or more of students on free or reduced lunch) 0 = non-extreme poverty
School Safety	1 = safer schools 0 = less safe school
School Obstacles to Student Learning	1 = less obstacles 0 = more obstacles
Teacher Professional Community	1 = more reported community 0 = less reported community
Small Learning Communities	1 = more reported small learning communities 0 = less reported small learning communities

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